NAVAL AVIATION DEPOT, North Island Naval Air Station – INFRASTRUCTURE IMPROVEMENT PROGRAM

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Background:

- NADEP is located at North Island, CA:
  - Primarily Aircraft Rework/Overhaul
  - 2000 People
  - $500 Million Budget
  - $4.5 Million Energy/Water Budget
  - 8000 point EMS/DDC
  - Excellent Water Conservation
  - A Goldmine of Opportunities

Overview:

- P-754 - **$3.9 million Awarded** (ECIP Funded) 85 Percent Complete
  - Heat Treat Steel Furnace Quench, Washer, Cover Gas – B472
  - Plating/Cleaning Controls for Tank Heating, Filters, Agitation – B472
  - Hard Chrome Tank Covers to meet 2006 EPA Requirements – B472
  - Motor Replacement – Various Buildings
  - Report Generation – Uses PWC Meter Data to Generate a Report in 4 Hours vice 40
- P-753 - **$2.6 million Awarded** (ECIP Funded) 15 Percent Complete
  - Compressed Air Retrofits – Various Buildings
  - (2)125 Ton Chillers with Turbocor and Hartman Loop DDC Upgrades – B469
  - (1) 90 Ton Turbocor Compressor Replacement DDC Upgrades – B250
  - Lighting Replacement – Various Buildings
  - High Bay Lighting Demo 440 watt HID Lights with Electronic Ballasts – B378
  - Tank Cover with Heating Coil for Methylene Chloride – B472
- P-752 - **$23 million – Proposed** (Financed)
  - 135 Excellent Potential Projects
  - Navy Payback Approximately 4 Years
  - Very Significant Infrastructure Improvement
  - Incentives - State of California will Pay Equipment Cost i.e. 40 Percent of Cost

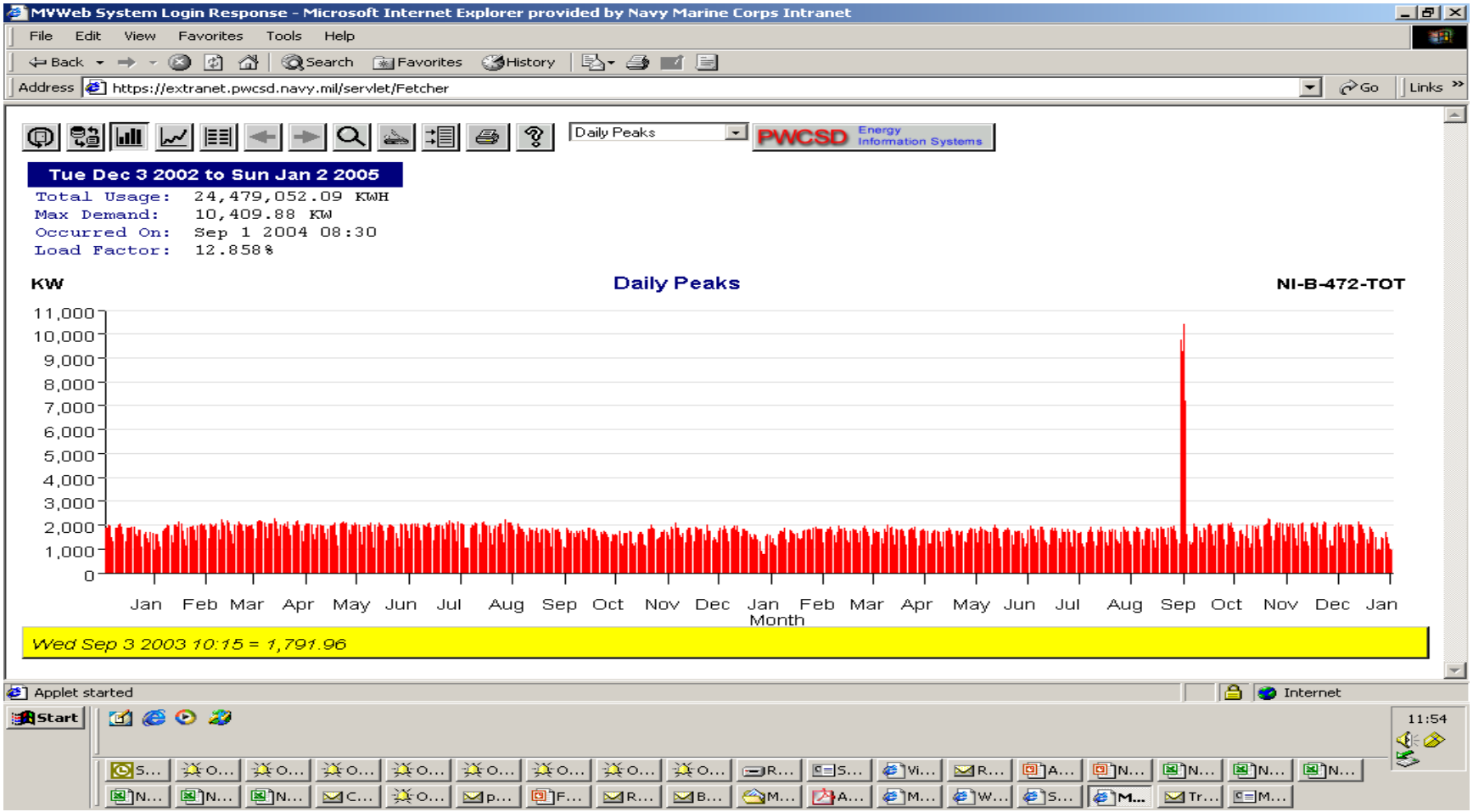
Firsts:

- Hard Chrome Tank Covers Meeting FY2006 EPA Requirements – Awarded (One Year for SDAPCD Approval to Construct.) – Awarded
- Turbocor Chiller with Hartman Loop in DoD – Awarded
- Zero-Discharge in Plating/Cleaning Operations – Awaiting Funds
- Zero-Discharge in Paint Strip Operations – Awaiting Funds
- Cleaning Tank Covers – Awaiting Funds

NADEP – Top Ten Buildings

BLDG	FT2	FUNCTION	PRECENT USAGE BY BLDG	ESTIMATED AVE USAGE (MW)	ESTIMATED NIGHT USAGE (MW)	ESTIMATED AVE COST/YR	PERCENT
472	304,733	MANUFACTURING & PROCESS	23%	1.35	1.00	$1,195,244	74.07%
463	145,751	AVIONICS AND CALIBRATION	14%	0.82	0.70	$726,000	85.37%
465-468	85,312	PAINT/STRIP COMPLEX	9%	0.55	0.30	$486,951	54.55%
378	105,280	HANGER INSTRUMENT SHOPS & ENGINEERING	9%	0.55	0.35	$486,951	63.64%
469	50,000	MATERIALS LAB & PRIMARY STANDARDS LAB	8%	0.44	0.42	$389,561	95.45%
379	229,062	HYDRAULICS AND COMPONENTS	7%	0.48	0.25	$424,976	52.08%
334	78,264	ENGINEERING AND COMPUTER SUPPORT	6%	0.28	0.25	$243,476	90.91%
250	115,297	COMPOSITE REPAIR	6%	0.38	0.28	$332,012	73.33%
94	66,900	AIRCRAFT HANGER & ADMIN OFFICES	3%	0.04	0.02	$30,988	57.14%
317	69,922	ENGINEERING OFFICES & ATE	3%	0.09	0.06	$79,683	61.11%
-	N/A	REMAINING FACILITIES	12%			$0	
TOTAL:	1,250,521		**100%**	4.97	3.62	**$4,395,842**	

B 472 Loads:


MVWeb System Login Response - Microsoft Internet Explorer provided by Navy Marine Corps Intranet
File Edit View Favorites Tools Help
Back Search Favorites History
Address https://extranet.pwcsd.navy.mil/servlet/Fetcher
Go Links
Daily Peaks
PWCSD Energy Information Systems
Tue Dec 3 2002 to Sun Jan 2 2005
Total Usage: 24,479,052.09 KWH
Max Demand: 10,409.88 KW
Occurred On: Sep 1 2004 08:30
Load Factor: 12.858%
KW
Daily Peaks
NI-B-472-TOT
11,000
10,000
9,000
8,000
7,000
6,000
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4,000
3,000
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0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan
Month
Wed Sep 3 2003 10:15 = 1,791.96
Applet started
Internet
Start
11:54

B 250 - Installed

- Oven Door Retrofits
- Cost: $52,000
- Navy Payback: 2.5

B 378 Instruments - Installed

- HID Lighting
- Installed Demo of 18 Fixtures of 440 watts
- Replaced 1000 watts
- 100 foot-candles
- Excellent Color Rendition

B 472 Heat Treat Shop - Installed

- **New Lindberg Steel Furnace, Integral Quench, Wash**
- **Replaced Three WWII Furnaces and an Endo-Thermic Gas Generator that were on 24/7**
- **$1.375 Million**
- **Navy Payback: 8.4 Years**
- **Cost Covered by Other Projects**

B 472 Heat Treat Shop - Installed

- Methanol Storage – Used for Maintaining Carbon Levels
- Liquid Nitrogen Tank – Used for a Cover Gas
- Saves Electricity & Natural Gas
- Reduced Maintenance

B 472 Plating Shop - Installed

- Controls for Tanks - Steam, Agitation, and Filtration
- Cost: $1.345 million for Plating/Cleaning
- Navy Payback: 5.8 Years

B 472 Cleaning Shop - Installed

- Controls for Tanks - Steam, Agitation, and Filtration
- Cost: $1.345 million for Plating/Cleaning
- Navy Payback: 5.8 Years

B 472 Cleaning Shop - Installed

- Inductors for Agitation vice Air or Impellers

Reports – Sample Report Generated from Navy Public Works Center Meter Data - Completed

- It took 30 Hours to Generate a Much Less Inclusive Report vice 4 Hours for This
- Please See Handout *(click here)*
- Cost: $40,000
- Written in Access
- Easy to See what is Happening
- Navy Property

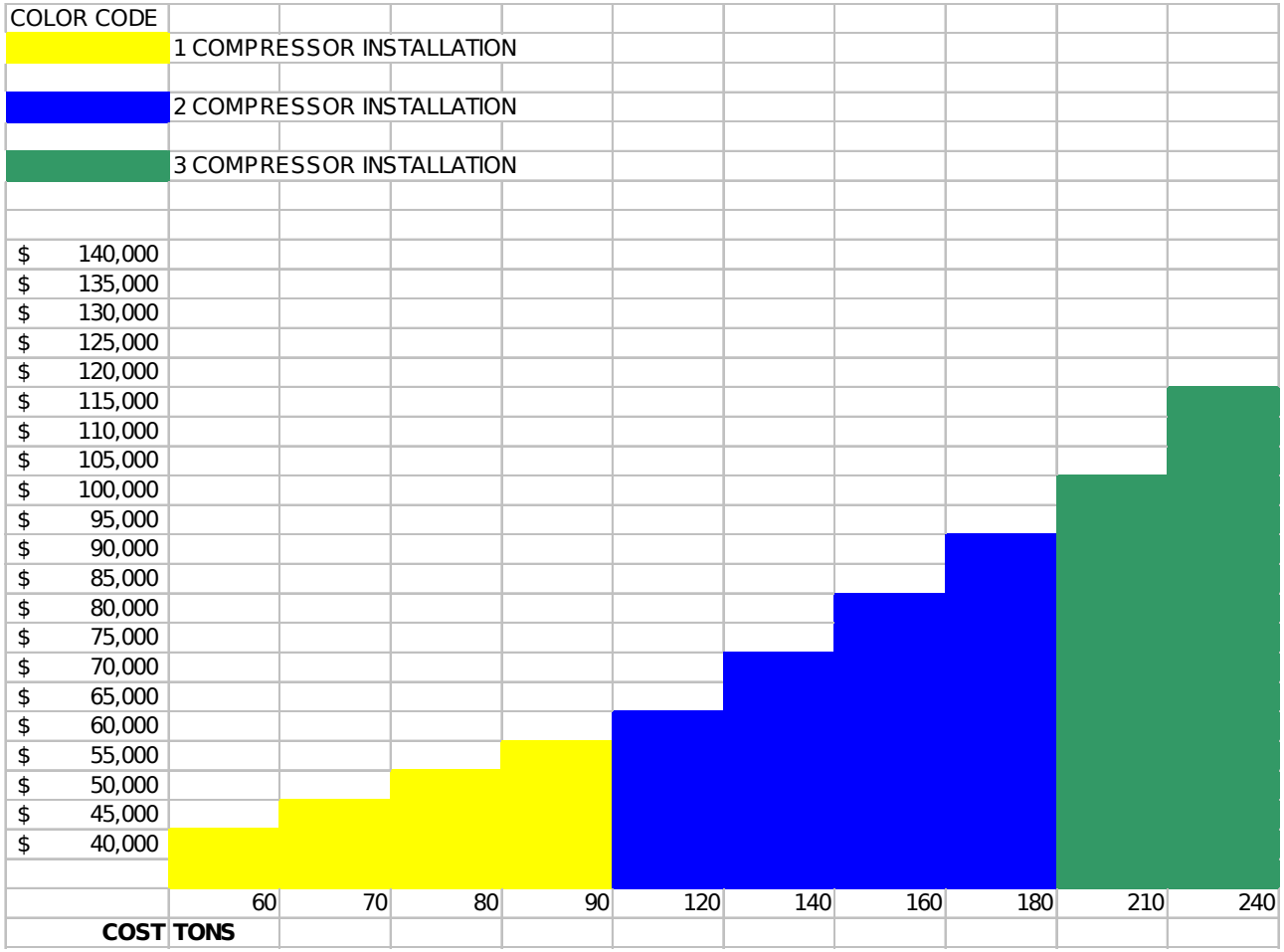
Various - Installed

- Motor Replacement
- Cost: $641,000
- Navy Payback: 3.3

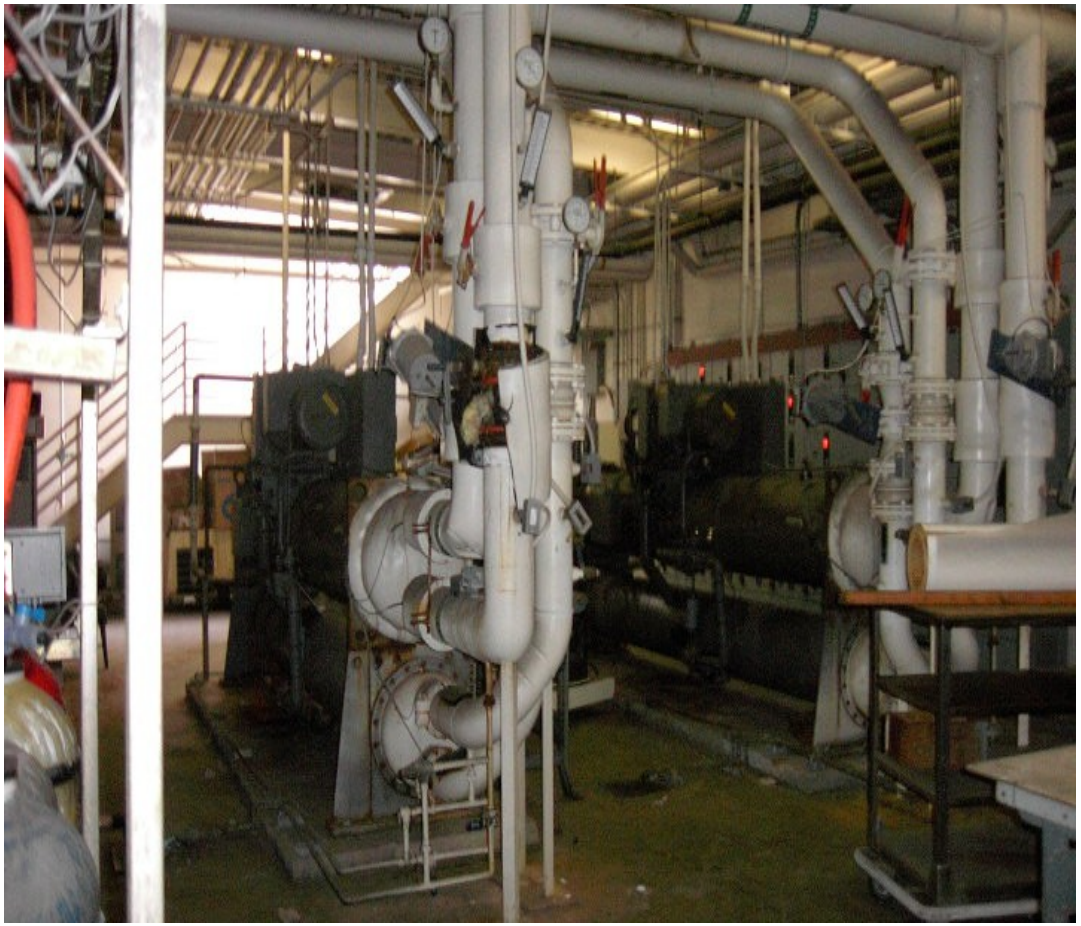
B 250 Composites Building - Awarded

- Retrofit Compressor on Existing Chiller
- Navy Techval Program Installed Two: San Diego & Newport, RI
- Shows Approximately 50 Percent Savings at Part Load
- www.turbocor.com
- Limited Sizes

Turbocor Installation Guide

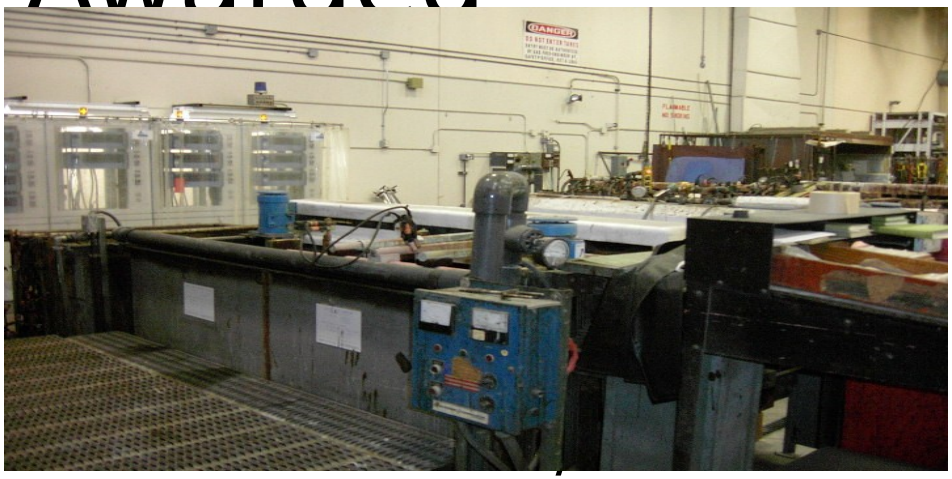


B 469 Material's Lab/Western Standards Lab -



- Hartman Loop – Phase I with Controls Integrated with Siemens EMS/DDC
- XXXXX Chillers with Turbocor Compressors
- First in DoD
- Expect .4 kw/ton or less

B 472 Plating Shop - Awarded

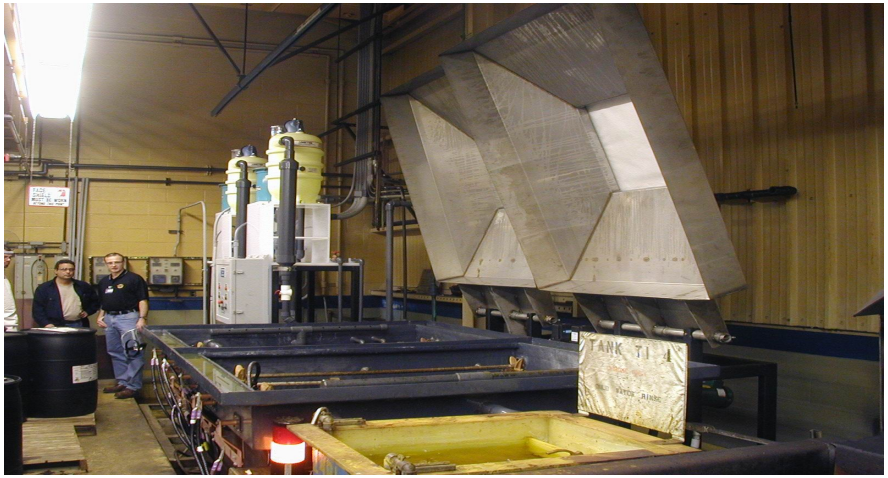


- Hard Chrome Tank Ventilation Using a Cover vice Push/Pull Ventilation
- Replace Existing Ventilation with a Patented XXXX Cover for 5 by June 2005

B 472 Plating Shop - Awarded

- Hard Chrome Tank Scrubbers
- Replaces Ventilation Operating 24/7
- Cost: $332,000
- Navy Payback: 1.88 Years

B 472 Plating Shop - Awarded



- Palm Intl Cover

B-35 Bearing Shop - Proposed

- Closed Loop Solvent Washer better Cleaning at Less Cost
- $330,000
- Navy Payback: 10 Years

B 250 Composite's Building - Proposed

- 1 MW Photovoltaic Carport System
- Cost: $7.2 Million
- Incentives: $3.2 Million
- Savings: $135,000/Year

B 469 Material's Lab/Western Standards Lab -

- XXXX – Phase II with Controls Integrated with Siemens EMS/DDC Variable Air Distribution System
- Remove DX Units from Roof

B 464 Complex - Proposed

- Wireless Steam Traps
- 900 Mhz Wireless Connection to EMS/DDC to Instantly Detect Steam Leaks
- Cost: $1 million
- Payback Highly Dependent on Yearly Steam Rates – 5 Years

B 464 Complex - Proposed

- Zero Discharge Paint Strip Effluent
- NADEP Treatment Cost is $1.10/gal
- $550,000
- Navy Payback: 3 Years
- NADEP Payback: .75 Years

B 469 Material's Lab/Western Standards Lab -

- Fume Hoods – Conditioned Air Removed 24/7

B 472 Plating Shop - Proposed

- Zero Discharge & Reverse Osmosis – Processes for all Plating and Cleaning Effluent
- NADEP Treatment Cost is $1.10/gal
- $600,000
- Navy Payback: 9.5
- NADEP Payback: 3.6

B 472 Painting Shop - Proposed

- Reduce Face Area by Installing Movable Doors to Reduce Air Flow Requirements by Approximately Half

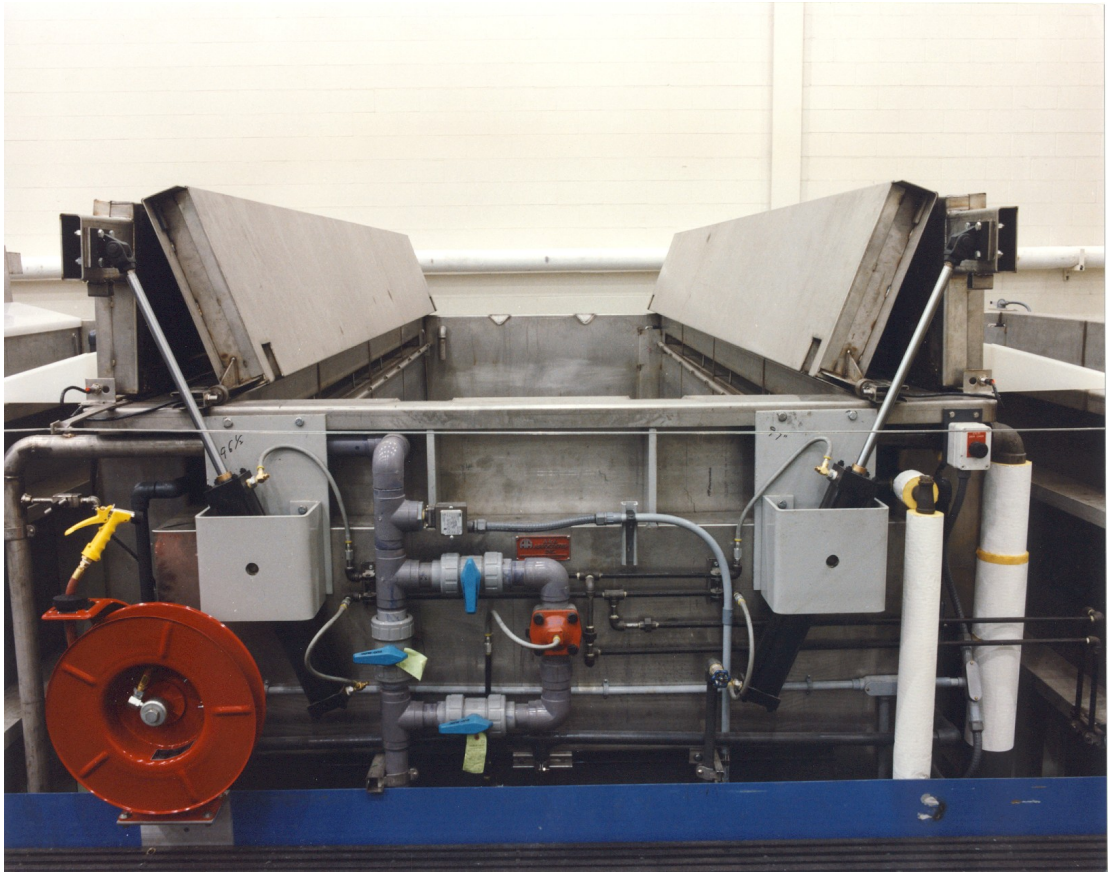
B 472 Painting Shop - Proposed

- Add a Paint Gun Trigger Control to Reduce Air Flow when not Painting

B 472 Cleaning Shop - Proposed

- Install 22 Covers for all Cleaning Tanks to Reduce the Present Airflow Required to Meet OSHA Requirements
- Only Three Tanks would be Open at a Time

B 472 Cleaning Shop - Proposed



- Proposed XXXX Cover
- Operates 24/7
- VFD Control will increase Scrubber Fan Speed when Tanks are Open and Open Pull-Pull Vents
- $1.5 Million
- Navy Payback: 4-5 Years

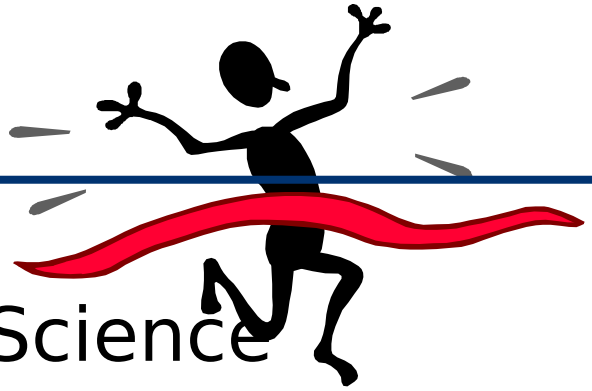
Various - Proposed

- Replace 11 Watt LED Single/Double Sided Exit Signs with Electroluminescent Exit Signs
- Life: 25 Years
- Battery Life is 5 Years
- SWDIV Fire Protection has Approved, pending Ambient Light Levels

B 464 Complex - Proposed

- Xeroscape/Irrigation Controls - Install irrigation to all NADEP areas. Replace limited areas with Xeroscape.
- Solar Powered Controllers

Conclusion:



- Engineering is an Art, Not a Science
- It is Not Perfect, because not Perfect People are Designing, Contracting, Constructing, and Maintaining it
- Hopefully, We are Striving to Go in the Correct Direction

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